

POLY(ARYLENE ETHERS) WITH PENDANT
CROSSLINKABLE GROUPS, AND DEVICES
INCORPORATING SAME

STATEMENT OF RELATED CASES

This application is related to the following co-pending, concurrently filed, commonly assigned U.S. patent applications, each of which is incorporated by reference: (1) U.S.S.N.

6/714,356 entitled "Process for Preparing Poly(arylene ethers) with Pendant Crosslinkable Groups;" (2) U.S.S.N. 6/714,387 ^{now allowed} entitled "Crosslinked Compositions Comprising a Poly(arylene ether) and a Nonlinear Optical Chromophore, and Devices Incorporating Same;" (3) U.S.S.N.

6/714,266 entitled "Process for Preparing Crosslinked Polymer Blends That Include a Luminescent Polymer;" and (4) "Crosslinked Polymer Blends That Include a Luminescent Polymer, and Devices Incorporating Same;" ^{now allowed} 6/714,837 ^{now allowed}.

BACKGROUND

All patents, patent applications, and publications cited within this application are incorporated herein by reference to the same extent as if each individual patent, patent application or publication was specifically and individually incorporated by reference.

The invention relates generally to crosslinkable polymer compositions, methods of making crosslinkable polymers, and devices and uses for crosslinkable polymers. Crosslinked polymer compositions generally have higher glass transition temperatures (T_g) and greater mechanical stability than noncrosslinked polymers. In addition, crosslinked polymers are usually resistant to solvents that dissolve noncrosslinked polymers. The property of solvent resistance is particularly important in applications that require overcoating of polymers with other polymers. The properties of crosslinked polymers including high mechanical strength, high T_g , and solvent resistance are important in applications such as protective coatings, electronics, optics, electro-optics, and polymer light emitting diodes.

Poly(arylene ether)s having hydroxy, cyclopentadienone, acrylate, and alkynyl crosslinkable groups in the main chain and/or side-chain (pendant) are known, for example see U.S. Pat. No. 6,340,528; 6,313,185; 6,117,967; 6,060,170; 5,994,425; 5,849,809; 5,498,803; and 5,204,416. In some cases, functional groups have been grafted onto poly(arylene ether)s under conditions requiring long reaction times. In other cases, functional groups on the poly(arylene